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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,311	07/14/2003	William R. Rehman	11694/04283	6297
27483	7590	01/12/2005	EXAMINER	
CALFEE, HALTER & GRISWOLD, LLP			KOCH, GEORGE R	
800 SUPERIOR AVENUE			ART UNIT	
SUITE 1400			PAPER NUMBER	
CLEVELAND, OH 44114			1734	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,311

Applicant(s)

REHMAN ET AL.

Examiner

George R. Koch III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/22/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Applicant includes two claims numbers "21".

Misnumbered claim 21 (second instance) and 22-23 been renumbered 22-24.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification as originally filed in application 09/724,363 for a charging surface comprising negative tribocharging material which negatively tribocharges powder by giving up electrons to the powder and a positive tribocharging material to reduce impact fusion.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-4 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lader (US 5,622,313)

As to claim 1 and 21, Lader discloses a component that forms part of a powder flow path (for example, items 38 and 39) for powder delivery to an electrostatic powder spraying system, the component comprising a body having a powder flow path formed therein (visible in Figure 1), the powder flow path defining a charging surface for triboelectrically charging powder coating material which contacts the charging surface, said charging surface comprising a negative tribocharging material.

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Furthermore, official notice is taken that is considered well known and conventional to mix the above disclosed materials to form a tribocharging surface, in order to modulate the charging strength of the surface and powder, in order to achieve different charging effects. Such a mixing would enable proper charging effects. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized both materials in order to enable proper charging effects.

As to claim 2, Lader discloses air passages (item 30).

As to claim 3, Lader discloses an electrical conductor (item 20, see column 4, lines 31-43).

As to claim 4, Lader discloses air passages (item 30).

As to claim 12, Lader discloses that the component can include the nozzle (item 38 extends towards the front and this portion is the nozzle).

As to claim 16, Lader discloses that the component (item 38) forms a part of the powder flow path.

As to claim 17, Lader discloses that the gun is a tribocharging spray gun (see description)

As to claim 18, Lader discloses an electrode for corona effects (see column 6, lines 25-36), and thus is a corona spray gun.

As to claim 19, Lader discloses that the component can include the wear sleeve (item 38 extends into the barrel and the back portion is a wear sleeve).

As to claim 22, official notice is taken that it is further well known and conventional to experimentally determine the mixture of positive to negative material,

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based on the desired charging effect. Such experimentation would result in a gun suited for specific purposes. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such experimentation in order to achieve the desired charging effect.

As to claim 23, Lader discloses that the component can include the nozzle (item 38 extends towards the front and this portion is the nozzle).

1. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lader (US 5,622,313) and any of (1) (a) Handbook of Plastic Compounds, Elastomers and Resins with (b) Powder Coating : The complete finisher's handbook 1st Edition (2) Conductive Polymers and Plastics or (3) Mammino (US 5,683,844) or (4) Peck (4,090,666) and the Delrin AF fact sheet from Insterstate Plastics (published in 1999) or (5) Walberg (US 3,896,994).

As to claim 1 in general, Lader discloses an apparatus for spraying powder coating material having a powder flow path (see Figure 1, for example), wherein the powder flow path has a charging surface or component for triboelectrically charging powder which comes in contact with the charging surface.

Lader does not disclose that any of the claimed materials can form the tribocharging surface. However, Lader does disclose that materials used as powders can be reversed to be used as charging surfaces, and vice versa (see column 1, lines 56-64).

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As to claim 8, Handbook of Plastic Compounds, Elastomers and Resins discloses that it is known to use aminoplastic resins as a coating material for automobile primer and enamel applications (for example, any of the Uformite ® entries on page 65). Automobile painting is conventionally performed by an electrostatic coating process (for example, see page 1 of Powder Coating, which discloses that electrostatic powder spray is the most common form of spraying in industrial applications). Under the reversibility principle disclosed in Lader, these aminoplastic resins can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an aminoplastic as the charging surface.

As to claim 7 and 9, Conductive Polymers and Plastics (in pages 181-187) discloses polyamide resin blends such as polyphenylene ether and polyamide as a coating material for electrostatic coating. Under the reversibility principle disclosed in Lader, these polyamide resin blends can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a polyamide resin blend as the charging surface.

As to claim 9, Mammino discloses fiber reinforced polyamide such as fibrillated PTFE (see columns 5 through 7 and polyamide as a coating material for electrostatic coating applications. Under the reversibility principle disclosed in Lader, these fiber

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reinforced polyamides can also be used as charging surfaces. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a fiber reinforced polyamides as the charging surface.

As to claim 5 and 6, Peck discloses that it is known to use delrin and Teflon in the fluid flow due to their excellent transfer efficiencies. Further, the specifications for delrin AF, published in 1999, disclose that delrin AF has similar dielectric properties to ordinary delrin. Ordinary delrin has a dielectric constant of 3.7 and a dielectric strength of 380 Volts/mil, and delrin AF has a dielectric constant of 3.1 and a dielectric strength of 400 Volts/mil. Since triboelectric charging effectiveness is a factor of dielectric properties, one in the art would appreciate that delrin AF is an acceptable substitute of the delrin surface cited in Peck. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized an acetal polymer combined with polytetrafluoroethylene fibers such as Delrin AF as part of the charging surface in Lader since Peck discloses using delrin and delrin AF is equivalent to delrin, and such a substitution could lead to improved transfer properties.

As to claim 5 and 10, Walberg discloses that the internal mix cap, a part of the fluid flow, is manufactured from Celcon, cited by applicant as an acetal copolymer. Such a charging surface would allow for the application of different powders and would improve coating versatility in an industrial environment. Therefore, it would have been

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obvious to one of ordinary skill in the art at the time of the invention to have utilized an acetal copolymer as part of the charging surface.

Furthermore, as to claim 11, official notice is taken that is considered well known and conventional to mix the above materials to form a tribocharging surface, in order to modulate the charging of the powder. Such a mixing would enable proper charging effects. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized both materials in order to enable proper charging effects.

6. Claim 13-15, 20, and 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lader as applied to claim 1 and 21 above, and further in view of Vohringer.

As to claims 13-15, 20, and 24, Lader is silent as to the construction of the additional elements being the component (i.e., the tribocharging element).

As to claim 13-15, 20, and 24, Vohringer discloses a tribocharging gun wherein the interior of the spray gun is made of tribo-charging material (see column 4, lines 63-68). This would include the powder feed tube (item 11), the pump (item 37, i.e., includes the pump throat) and powder hose (item 34), as well as elements within the tube which are components having a surface that is contacted by powder during a spraying operation of the gun (such as displacement body. One in the art would immediately appreciate that increasing tribocharging material results in an increase in the contact surface, and thus an increase in the charging capacity of the device, and

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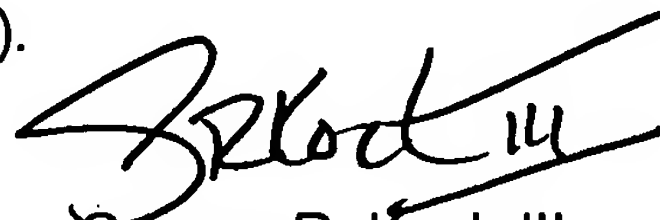
ensures better coating quality. Furthermore, one would immediately appreciate that any surface that the powder contacts can be used as the tribocharging surface, such as the Venturi throat, and powder hopper, in order to achieve further tribocharging. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such additional tribocharging material contact surfaces in the powder feed tube in order to increase the charging capacity of the device, resulting in improved coating quality.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230. If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George R. Koch III
Patent Examiner
Art Unit 1734

GRK
1/10/2004